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(72) Inventors; and

(75) Inventors/Applicants (for US only): YOSHIDA, Naohiro [JP/JP]; C/O Tokyo Institute of Technology, 12-1, O-okayama 2-Chome, Meguro-ku, Tokyo 152-8550 (JP). ABE, Osamu [JP/JP]; C/O Hydropheric Atmospheric Research Center, Nagoya University, Furo-cho, Chikusa-ku, Nagoya-shi, Aichi 464-8601 (JP). UEMURA, Ryu [JP/JP]; C/O Tokyo Institute of Technology, 12-1, O-okayama 2-Chome, Meguro-ku, Tokyo 152-8550 (JP). WATANABE, Hiroshi [JP/JP]; C/O SUGA TEST INSTRUMENTS CO., LTD., 4-14, Shinjuku 5-Chome, Shinjuku-ku, Tokyo 160-0022 (JP).

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(74) Agent: FURUYA, Fumio; Dai2 Meijo Bldg., 9th Floor, 19-5, Nishishinjuku 1-Chome, Shinjuku-ku, Tokyo 160-0023 (JP).

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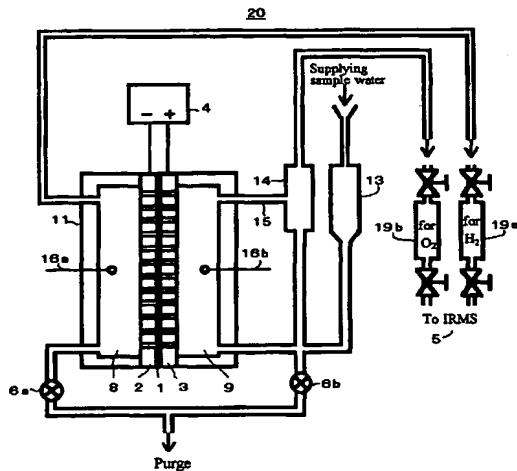
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(54) Title: WATER ELECTROLYSIS METHOD AND DEVICE FOR DETERMINATION OF HYDROGEN AND OXYGEN STABLE ISOTOPIC COMPOSITION



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(57) Abstract: To provide a water electrolysis device for the determination of stable isotopic composition of water and a water electrolysis method for stable isotopic composition of water capable of analyzing many samples with ease, with safety and at low cost in a very short time, and rapidly analyzing  $^{17}\text{O}$ . The water electrolysis device performing mass spectrometry of hydrogen or oxygen stable isotopic composition includes: a proton exchange membrane which is made of fluorocarbon polymer plated non-electrolytically with platinum, iridium, rhodium or iridium-rhodium alloy, and a cathode and an anode made of porous titanium plated with platinum and sandwiching the proton exchange membrane, in which water is electrolyzed by introducing it into the anode side chamber and supplying a DC current between the anode and the cathode, and oxygen gas generated at the anode and hydrogen gas generated at the cathode are respectively allowed to flow into a isotope ratio mass spectrometer. Also it is provided that a water electrolysis method for stable isotopic composition of water using the water electrolysis device.